

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An optical transmitting device of modulating an optical signal by a first signal and then by a second signal for transmission, the device comprises:

an optical splitting means for splitting the optical signal modulated by the first signal into split optical signals, the optical signal modulated by the first signal including one or more harmonic distortions of the first signal;

~~a photoelectric conversion means for converting one of the split optical signals to a converted electrical signal; and~~

a cancellation signal generating means for generating a cancellation signal from one of the split optical signals, the cancellation signal including a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal; canceling the one or more harmonic distortions of the first signal interfering with the second signal contained in the other of the split optical signals, by using the converted electrical signal

a combining means for combining the second signal with the cancellation signal;
and

a modulating means for modulating the other of the split optical signals with the combined signal.

2. (Cancelled)

3. (Currently Amended) The optical transmitting device as set forth in claim 1, wherein the cancellation signal generating means comprises:

a photoelectric converting means for converting the one of the split optical

signals to an electrical signal;

a filter means for extracting the one or more harmonic distortions of the first signal interfering with the second signal in an electrical signal including the frequency spectrum at least partially overlapped with the frequency spectrum of the second signal from the converted electrical signal; and

a phase adjustment means for adjusting a phase of the extracted electrical signal;
and

a combining means for combining the phase-adjusted electrical signal and the second signal.

4. (Previously Presented) The optical transmitting device as set forth in claim 1, wherein the first signal is an FM batch converted signal.

5. (Previously Presented) The optical transmitting device as set forth in claim 4, wherein the second signal is a satellite broadcasting RF signal.

6. (Previously Presented) An optical transmission system comprising the optical transmitting device as set forth in claim 5 and an optical receiving device for receiving an optical signal transmitted via an optical path from the optical transmitting device, wherein the optical receiving device comprises:

an optical splitting means for splitting the received optical signal to an optical signal containing the FM batch converted signal and an optical signal containing the satellite broadcasting RF signal;

a first photoelectric conversion means for converting the optical signal containing the FM batch conversion signal split by the optical splitting means to an electrical signal;

a demodulation means for FM demodulating the electrical signal converted by the first photoelectric conversion means;

a second photoelectric conversion means for converting the optical signal containing the satellite broadcasting RF signal split by the optical splitting means to an electrical signal; and

a downconverting means for down-converting the electrical signal converted by the second photoelectric conversion means.

7. (Previously Presented) An optical transmission system comprising the optical transmitting device as set forth in claim 5 and an optical receiving device for receiving an optical signal transmitted via an optical path from the optical transmitting device, wherein the optical receiving device comprises:

a photoelectric conversion means for converting the received optical signal to an electrical signal;

a filter means for separating the electrical signal converted by the photoelectric conversion means to the FM batch converted signal and the satellite broadcasting RF signal;

a demodulation means for FM demodulating the FM batch converted signal separated by the filter means; and

a downconverting means for down-converting the satellite broadcasting RF signal separated by the filter means.

8. (Currently Amended) An optical transmitting method for modulating an optical signal by a first signal and then by a second signal for transmission, the method comprises:

splitting the optical signal modulated by the first signal into split optical signals, the optical signal modulated by the first signal including one or more harmonic distortions of the first signal;

~~converting one of the split optical signals to an electrical signal, and
canceling the one or more harmonic distortions of the first signal interfering with~~

the second signal contained in the other of the split optical signals using the converted electrical signal

generating a cancellation signal from one of the split optical signals, the cancellation signal including a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal;

combining the second signal with the cancellation signal; and

modulating the other of the split optical signals with the combined signal.

9. (Cancelled)

10. (Currently Amended) The optical transmitting method as set forth in claim 8, wherein the ~~canceled~~ generating step comprises:

converting the one of the split optical signals to an electrical signal;

extracting the one or more harmonic distortions of the first signal interfering with the second signal in an electrical signal including the frequency spectrum at least partially overlapped with a frequency spectrum of the second signal from the converted electrical signal; and

adjusting a phase of the extracted electrical signal; and

combining the phase-adjusted electrical signal and the second signal.

11. (Currently Amended) The optical transmitting method as set forth in any one of claims claim 8 to 10, wherein the first signal is an FM batch converted signal.

12. (Previously Presented) The optical transmitting method as set forth in claim 11, wherein the second signal is a satellite broadcasting RF signal.

13. (Previously Presented) An optical transmission method comprising steps of:

transmitting the optical signal modulated by the FM batch converted signal and the satellite broadcasting RF signal in accordance with the optical transmitting method as set forth in claim 12;

receiving and splitting the transmitted optical signal into an optical signal containing the FM batch converted signal and an optical signal containing the satellite broadcasting RF signal;

converting the split optical signal containing the FM batch converted signal to an electrical signal for demodulation; and

converting the split optical signal containing the satellite broadcasting RF signal to an electrical signal for downconversion.

14. (Previously Presented) An optical transmission method, comprising steps of:

transmitting the optical signal modulated by the FM batch converted signal and the satellite broadcasting RF signal in accordance with the optical transmitting method as set forth in claim 12;

receiving and converting the transmitted optical signal to an electrical signal; separating the converted electrical signal to a signal containing the FM batch converted signal and a signal containing the satellite broadcasting RF signal;

demodulating the separated signal containing FM batch converted signal; and downconverting the separated signal containing the satellite broadcasting RF signal.

15. (New) An optical transmitting device of modulating an optical signal by a first signal and then by a second signal for transmission, the device comprises:

an optical splitting means for splitting the optical signal modulated by the first signal, the optical signal modulated by the first signal including one or more harmonic distortions of the first signal;

a cancellation signal generating means for generating a cancellation signal from one of the split optical signals, the cancellation signal including a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal;

a first modulating means for modulating the other of the split optical signals with the cancellation signal; and

a second modulating means for modulating the modulated optical signal with the second signal.

16. (New) The optical transmitting device according to claim 15, wherein the cancellation signal generating means comprises:

a photoelectric converting means for converting the one of the split signals to an electrical signal;

a filter means for extracting an electrical signal including the frequency spectrum at least partially overlapped with the frequency spectrum of the second signal from the converted electrical signal; and

a phase adjustment means for adjusting a phase of the extracted electrical signal.

17. (New) The optical transmitting device according to claim 16, wherein the first signal is an FM batch converted signal.

18. (New) An optical transmitting method for modulating an optical signal by a first signal and then by a second signal for transmission, the method comprises:

splitting the optical signal modulated by the first signal, the optical signal modulated by the first signal including one or more harmonic distortions of the first

signal;

generating a cancellation signal from one of the split optical signals, the cancellation signal including a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal;

modulating the other of the split optical signals with the cancellation signal; and
modulating the modulated optical signal with the second signal .

19. (New) The optical transmitting method according to claim 18,
wherein the generating step comprises:

converting the one of the split optical signals to an electrical signal;

extracting an electrical signal including the frequency spectrum at least partially overlapped with the frequency spectrum of the second signal from the converted electrical signal; and

adjusting a phase of the extracted electrical signal.

20. (New) The optical transmitting method according to claim 19,
wherein the first signal is an FM batch converted signal.

21. (New) The optical transmitting method according to claim 20,
wherein the second signal is a satellite broadcasting RF signal.

22. (New) The optical transmitting device according to claim 3,
wherein the second signal is a satellite broadcasting RF signal.

23. (New) The optical transmitting device according to claim 17,
wherein the second signal is a satellite broadcasting RF signal.